REMARKS

The non-final Office Action mailed March 6, 2003 and the references cited therein have been carefully considered. Claim 1 has been amended in a sincere effort to further clarify that which Applicant regards as the invention.

Support for this Amendment is found generally within the specification, claims, and drawings, as originally filed. As a result of this Amendment taken together with the remarks set forth below, it is respectfully submitted that pending Claims 1-11 are now before the Examiner in condition for favorable consideration and allowance.

In the Office Action, Claim 11 was allowed. The allowance of Claim 11 is acknowledged and gratefully appreciated.

Claims 1-7, 9, and 10 under 35 U.S.C. § 102(b) have been rejected as being anticipated by a newly cited reference, U.S. Patent No. 5,535,853 to Skalski (*Skalski*). Specifically, the Examiner indicates that *Skalski* describes a direct electrodynamic linear drive comprising a drive coil system, which includes a coil arranged in rows alongside each other (24a, 24b; column 4, line 48; Figure 1A) on an elongated core (20, 30; Figure 1A), which is inherently supplied with a switched exciting voltage (column 4, lines 55-57 and column 5, line 15).

The Examiner also indicates that *Skalski* describes a ferromagnetic tube fitting around the drive coil system (22a, 22b; column 4, line 41; Figure 1A) and a plurality of permanent magnets (22a and 22b) wherein the core is provided with the drive coil system and designed as a stator and the tube is provided with the permanent magnet and designed as an armature. The Examiner states that *Skalski* discloses a housing having an integrated electric power system for electrically supplying the drive coil system (column 5, line 17) as defined by Claim 6, and a cylindrically wound drive coil system having one or more strands of winding placed in sequence with axially alternating directions of winding on the core, as defined by Claim 7.

Claims 8 and 10 were rejected under 35 U.S.C. § 103(a) as being unpatentable over *Skalski* in view of U.S. Patent No. 6,160,338 to Ono (*Ono*). Specifically, the Examiner indicates that although *Skalski* fails to teach a linear electrodynamic drive that includes a displacement measuring system integrated in the housing, *Ono* discloses such an electrodynamic drive that includes a displacement measuring system at column 5, lines 27-29.

The subject invention is directed to an electrodynamic linear drive comprising a coil system comprising coils arranged in a row along side each other on an elongated ferromagnetic core. The coil system is able to be supplied with a switched exciting voltage and a ferromagnetic tube fits around the drive coil system. A plurality of permanent magnets is arranged on the inner side of the tube in a row alongside each other in the longitudinal direction of the tube. The core is provided with a drive coil system and designed as a stator. The tube is provided with permanent magnets and designed as an armature, as now defined by amended Claim 1.

Skalski relates to an actuator that is capable of moving both longitudinally and transversely. The actuator includes electromagnetic windings on a central section of a removable part or armature and permanent ring magnets disposed around the armature within the housing, as described at column 4, lines 35-65. The housing is adapted to allow longitudinal and transverse movement of the armature to compensate for rotational movement of pivot mounted linkages connected to the ends of the armature, as disclosed at column 2, lines 33-36. A typical application of such a device is for controlling or dampening vibrations in elevator cars.

However, as is clearly shown in Figures 1A and 2A, it is the central armature section 30, which has first and second ends 32, 34 that move in relation to surrounding elements. As shown in Figure 1A, the armature includes the central section 30 and discrete pairs of windings 24A, 24B that move longitudinally and transversely with respect to cylindrical magnets 22A, 22B surrounding the central armature section 30 and windings 24A, 24B. The magnets 22A, 22B are fixed to the housing 12 that encloses the actuator 10, as shown in

Figure 1A. Thus, "a ferromagnetic tube fitting around the drive coil system" is neither taught nor even usable by the *Skalski* actuator since those elements surrounding the central armature section 30 and windings 24A, 24B remain stationery with respect to the enclosure 12.

In addition, nothing in *Skalski* would teach or suggest a core and drive coil system designed as a stator. The term "stator" is commonly understood by one skilled in the art to refer to the stationery portion of a motor. *Webster's New Universal Unabridged Dictionary,* 2nd Edition, p. 1862 (1996). Further, nothing in *Skalski* would teach or suggest permanent magnets being designed as an armature. The term "armature" which is commonly understood by one skilled in the art to refer to the moving element(s) in an electromechanical device. R. Graf, *Modern Dictionary of Electronics,* 6th edition, p. 55 (1984). Specifically, *Skalski* discloses that the armature includes a central section 30 surrounded by windings 24A, 24B and that the stator includes permanent magnets 22A, 22B.

Ono relates to a transport device for holding and moving conductive planar objects. The apparatus includes floating-use electrodes to which a potential difference is applied for producing electrostatic forces that position the object in a non-contact state; driving-use electrodes to which potential differences are applied to cause currents to flow in portions of the objects that face these electrodes; and magnetic devices for generating fields that interact with the currents to produce drive forces acting on the object. The apparatus also includes displacement sensors for measuring the position of the object in a two-dimensional plane parallel to the carrying surface and a controller for monitoring the potential differences applied to the electrodes and the intensity of the magnetic fields based on the output of the displacement sensors.

However, *Ono* describes the use of displacement sensors that measure displacement in a two-dimensional plane, rather than the one-dimensional plane of the linear shaft in the subject invention. The displacement sensors in *Ono* are used to adjust the strength of the electric and magnetic fields for positioning the object to be moved, such as a semiconductor wafer, as described at column 10, line 24 through column 11, line 55. Thus, nothing in *Ono*

would teach or suggest integrating a displacement measuring system in a linear drive, as recited in Claim 10.

Applicant respectfully notes that in order to support a claim of *prima facie* anticipation, a single reference must teach or enable each of the claimed elements as arranged in the claim interpreted by one of ordinary skill in the art. Further, in order to support a claim of *prima facie* obviousness, the cited references must teach or suggest each and every element of the invention, and there must be a motivation in the references or the prior art to combine the references and the prior art as suggested.

However, nothing in the art of record would teach or suggest, either alone or in combination, a direct electrodynamic linear drive comprising a drive coil system and comprising coils arranged in a row alongside each other on an elongated ferromagnetic core. The coil system is able to be supplied with a switched exciting voltage and a ferromagnetic tube fits around the drive coil system. A plurality of permanent magnets is arranged on the inner side of the tube in a row alongside each other in the longitudinal direction of the tube. The core is provided with a drive coil system and designed as a stator, and the tube is provided with permanent magnets and designed as an armature, as now defined by amended Claim 1.

Applicant respectfully submits that Claims 2-10 are patentable over the art of record by virtue of their dependency from Claim 1. Further Applicant submits that Claims 2-10 define additional patentable subject matter in their own right. Therefore, it is respectfully requested that the rejection of Claims 1-7, 9, and 10 under 35 U.S.C. § 102(b) and the rejection of Claims 8 and 10 under 35 U.S.C. § 103(a) be reconsidered and withdrawn.

In view of the foregoing Amendment and remarks and entry of the amendment to Claim 1, favorable consideration of Claim 1, as amended, favorable reconsideration of Claims 2-10, and allowance of pending Claims 1-11 are respectfully and earnestly solicited.

Respectfully submitted,

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